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ABSTRACT

With the high cost of gas and electricity, more people are turning to wood or charcoal for fuel. The ash that remains after the wood or charcoal has been thoroughly burned can be used to prepare lye. "Suman sa lihiya," "cuchinta," and soap can be made with the use of this lye. Procedures for making these materials as well as the lye are presented in this module. Diagrams illustrating the procedures and recipes are provided when applicable. (JN)

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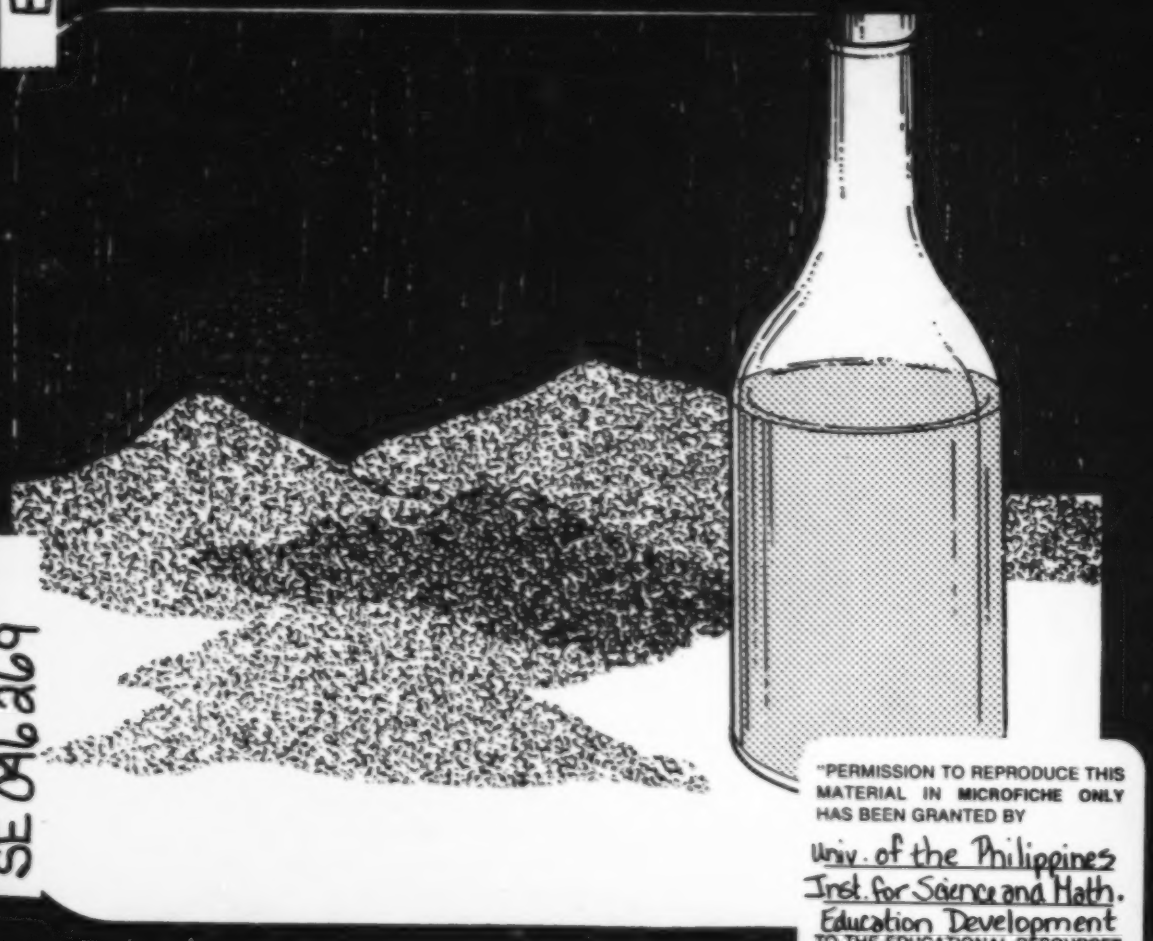
What We Make



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Science and Technology Education in Philippine Society

LYE from WOOD ASH

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LYE FROM WOOD ASH

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Lye from Wood Ash

Figure 1

With the high cost of gas and electricity more people are turning to wood or charcoal for fuel. The ash that remains after the wood or charcoal has been thoroughly burned can be used to prepare lye. *Suman sa lihiya, cuchinta,* and soap can be made with the use of this lye.

The best ash for such household purposes is ash made from coconut leaves but ash from other sources would do almost as well.

ASH AND LYE

Ash contains minerals obtained from burning plants, wood or coal. The leaching or running of water slowly through the ashes of burned wood yields a strong alkaline liquid called lye. Lye contains chiefly potash or potassium carbonate. Potassium carbonate is called *potash* because in ancient times a *pot* was used to evaporate wood *ash* lye to give potassium carbonate crystals. [These crystals were used in making soft laundry soap.]

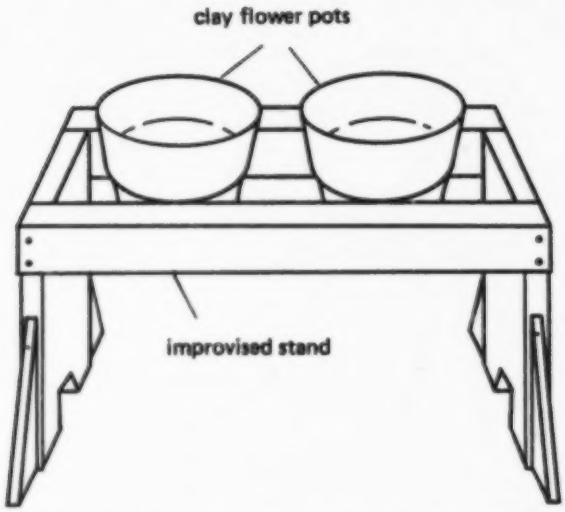
Care must be taken when working with concentrated lye for it is harmful to the skin. If the skin comes in contact with lye, wash the affected area with plenty of water and then apply weak vinegar.

PREPARATION OF LYE SOLUTION FROM WOOD ASH

A. Construction of Leaching and Filtration Set-up

- See figure 2 for the set-up. Use at least a pair of clay flower pots.

Figure 2

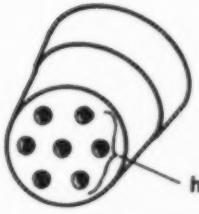


- Select pots without any holes at the sides. If such pots are not available, stopper the holes.

Figure 3

- With a drill, carefully bore holes about 0.5 centimeter in diameter at the bottom part of the pots.

Figure 4



- Inside the pot, cover the bottom holes with a piece of cotton cloth, preferably *cacha* folded twice if the ash still passes through cloth of single thickness.

Figure 5

B. Preparation of Lye for Cooking

- Remove the big unburned particles from the ash. Put 5 cups of the ash in each pot. The 10 cups together have approximately a mass of 1 kilogram.

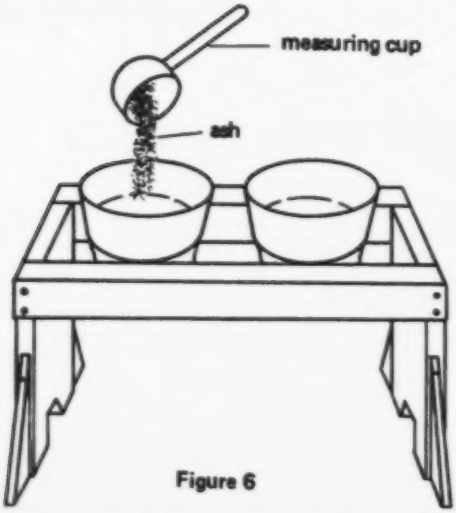


Figure 6

- Under the pots place a plastic (not metal) container. Pour 5 cups of water, cup by cup, over the ash in one of the pots. Wait until the water disappears from the surface after pouring each cup before adding the next.

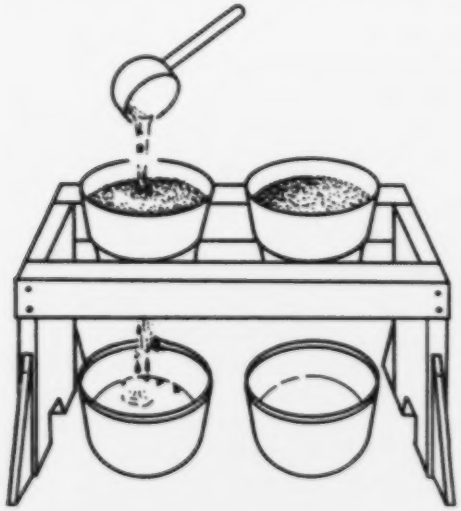


Figure 7

- The filtrate from the first pot is then poured, also cup by cup, into the second pot. This second filtrate is ready to be used for the cooking of *cuchinta* or *suman sa lihiya*.

Figure 8

CUCHINTA

1 cup flour
3/4 cup brown sugar
1 1/2 cups water
2 tsp *lihiya*
2 tsp *achuete* extract
(1 tsbp *achuete* soaked in 3 tsp water)
plastic or glass bowl
grated coconut
cuchinta molds or muffin pans
stove
steamer
plastic or wooden spoon

PROCEDURE:

- Mix the flour and brown sugar.
- Add water little by little to the mixture, stirring well so no lumps form.
- Add the *lihiya* and the *achuete* extract. Stir well.
- Pour the mixture into *cuchinta* molds or ungreased muffin pans until each is 3/4 full.
- Place the molds over boiling water in a steamer. Cover and steam for about 15 minutes.

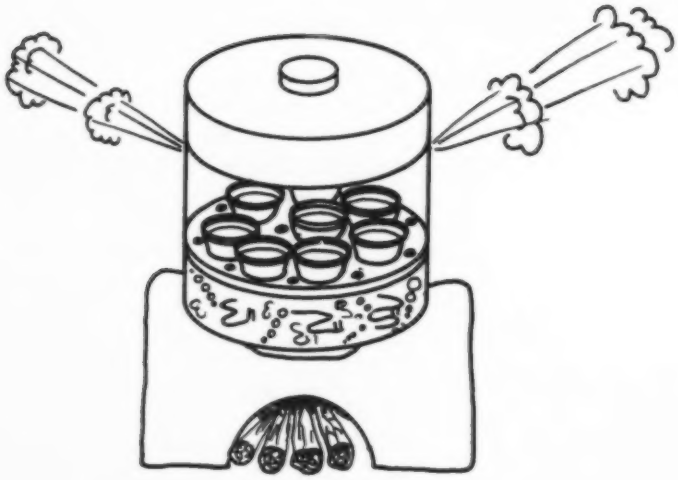


Figure 9

- Cool the *cuchinta* before removing from molds

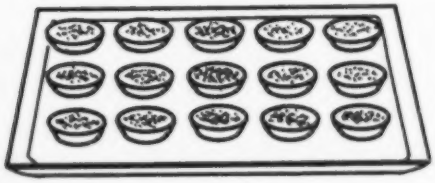


Figure 10

- Serve with grated coconut.

SUMAN SA LIHIYA (Recipe 1)

kettle
stove
basin (plastic or glass)
bilao
grated coconut
water
2 cups *malagkit* rice
2 tbsp lye
banana leaves
sugar

PROCEDURE:

- Soften the banana leaves in the sun or over a fire. Cut into 20 cm x 20 cm squares. Scrape the outer part of the midrib to make it more pliable and cut into thin strips about 25 cm long. These strips will be used for tying the *suman*. Plastic straw used for tying packages may be used instead of banana midrib.

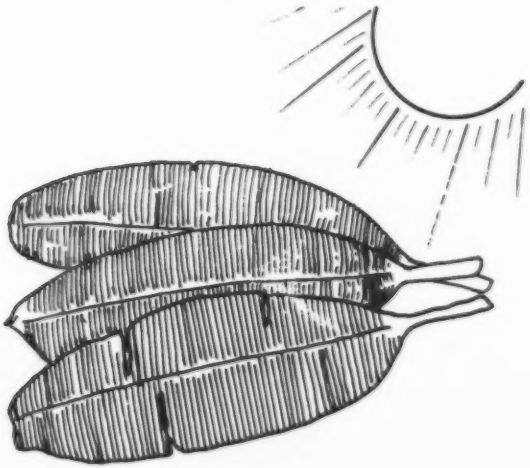


Figure 11

- Wash the rice. Let stand for 2 hours in water. Drain using a bilao. Leave under the sun for thorough draining. Transfer to a glass or plastic container.

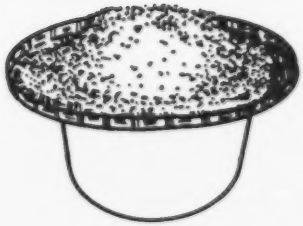


Figure 12

- Add the lye to the drained rice. Mix very well to distribute the lye. The rice becomes a little green as it mixes with the lye.
- Wrap 1 1/2 tbsp rice in 2 banana leaf squares placed one on top of the other with the shiny sides out.

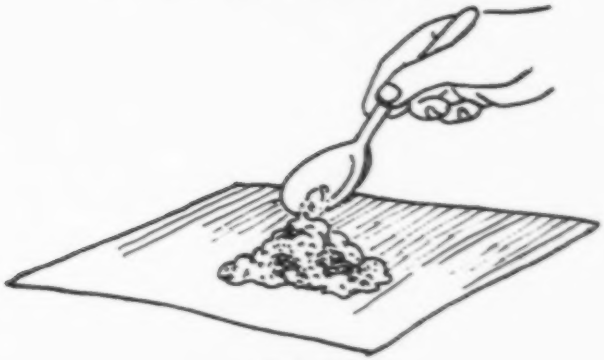


Figure 13

Do the same for the rest of the rice-lye mixture. See figure 14 for the way of wrapping.

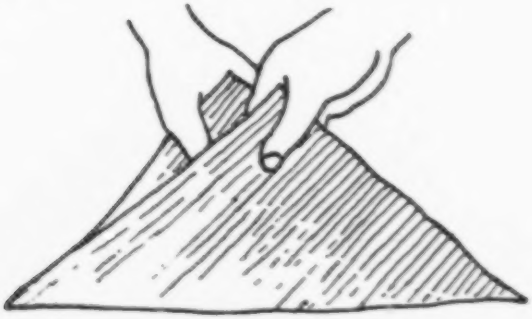


Figure 14a

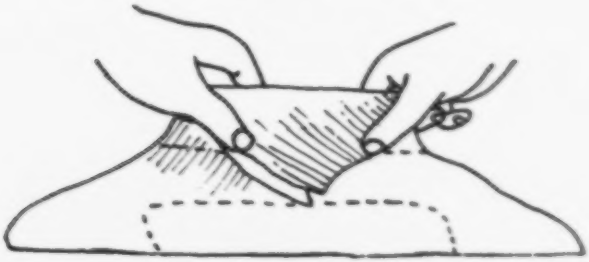


Figure 14b

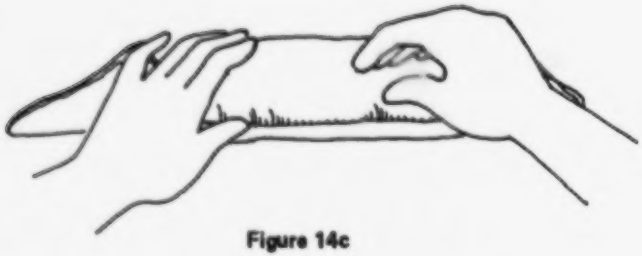


Figure 14c

Figure 14d

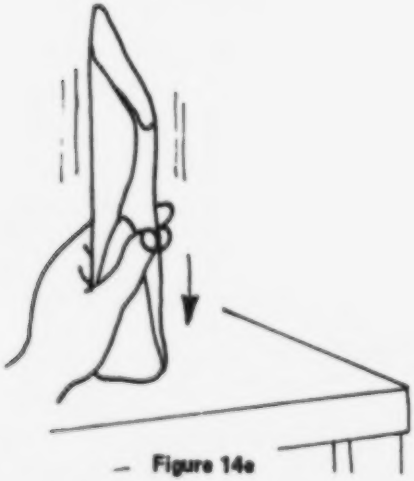


Figure 14e

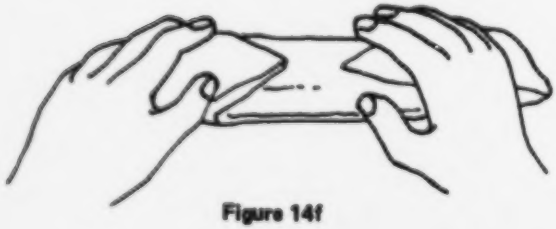


Figure 14f

- Tie two wrapped *sumans* securely together at both ends with strips of banana midrib or plastic straw so that the loose flaps are pressed between them.

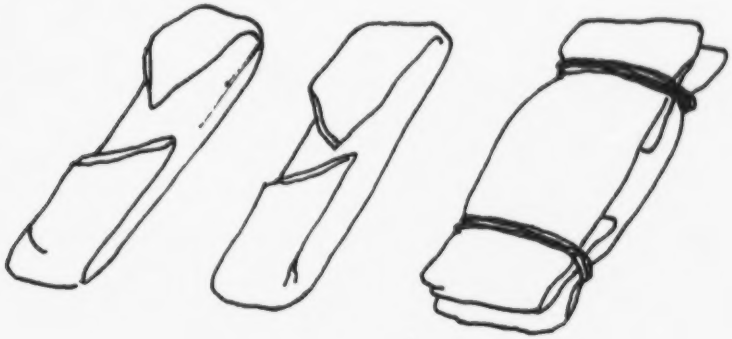


Figure 15

- Cover the bottom of a kettle with the paired *sumans*. Pour water over them until they are fully covered. Boil for 1 1/2 hours. Remove from the fire and allow to cool in the water for about 30 minutes.
- Remove and serve with grated coconut mixed with sugar.

SUMAN SA LIHIYA (Recipe 2)

This recipe gives a softer suman than recipe 1.

2 cups *malagkit* rice 2 tbsp *lihiya*

- Remove stones and other foreign matter from the rice. Wash the rice.
- Place in a bowl and add enough water to cover. Soak *exactly* 3 minutes. Pour off the water into another bowl and set aside.
- Measure the soaked rice. Measure an equal amount of water from the water that you set aside. If you do not want it as soft use 3/4 of the amount of water. Add more water if the amount set aside is not enough. Add the *lihiya* to the water.
- Mix this lye solution with the soaked rice.
- Boil the rice-*lihiya* mixture in an enamelled kettle using medium heat. Stir with round strokes in center and along the sides of kettle. When the water dries up remove from heat. This takes about 5 minutes.

- Wrap in two layers of sun or heat wilted banana leaves as in recipe 1 using *2 tbsp* of the pre-cooked mixture per *suman*. Boil some water while wrapping the mixture.
- Tie the suman in pairs, too, as described in recipe 1.
- Arrange the packed suman pairs in a kettle. Add boiling water to cover and boil about 1/2 hour. Remove from heat.
- Allow to cool in the water for another half hour.
- Serve with grated coconut and sugar or with butter and sugar.

C. Preparation of Lye for Making Soap[1]

Improvised leaching and filtration set-up
ash
measuring cup
2 plastic basins
measuring tablespoon
calcium oxide (*apog*)
four plastic glass funnels or small improvised filter flower pots
cotton cloth or *cacha*

- Place 5 cups of ash in each of the four pots. Into each pot pour 5 cups of water cup by cup. Collect the filtrates (filtrate 1) and pass through one of the pots refilled with 5 cups of new ash to give filtrate 2.
- To filtrate 2 add 5 tablespoons of lime (calcium oxide or *apog*) little by little while stirring. Using a plastic or glass funnel or small flower pot funnel, filter the mixture through three layers of cotton cloth. To the filtrate (filtrate 3) add 5 tablespoons of lime and filter. Continue the addition of 5 tablespoons of lime and filtration until you have added a total of 20 tablespoons of lime (See diagram).
- Measure the volume of the last filtrate (filtrate 6) by cups. Pour into a plastic basin and evaporate under the sun to 1/3 its original volume.
- Filter through cotton cloth. Keep the solid which is a mixture of calcium sulfate and calcium carbonate.
- Put the filtrate (filtrate 7) under the sun again until crystals form. Allow to cool and let it stand for one day or overnight.
- Filter. This filtrate (filtrate 8) is now a strong lye solution ready to be used for making soap.[2]

[1] Prepare this lye if calcium oxide is available and cheap.

[2] The procedure for soap making is given in the module "Laundry Soap from Waste Cooking Oil", UP-ISMED Publication, Diliman, Quezon City, 1984.

Flow Diagram of Lye Preparation for Making Soap